

# What's the hold-up?

## *Technology outstrips the rules*



**I**F electronic charts are the next big leap forward, why is it taking so long to get them accepted? The big argument over whether raster-based data should be used in the absence of sufficient vector-based data continues to ramble on, although a meeting to be held at the IMO in July could produce a final decision.

The basic building block of electronic charts is Regulation V20 of the IMO's Safety of Life at Sea (SOLAS) Convention, which states that all vessels shall "...carry adequate and up-to-date charts... necessary for the intended voyage." The principle of an electronic chart was first mooted back in the 1970s, but it was not until the mid-1980s that work got underway at the International Hydrographic Organization (IHO), and subsequently at the IMO, to develop the standards to enable electronic charts to meet the mariners' obligations under SOLAS.

At that time, computer power was particularly expensive and not power-



ful enough to manipulate large raster files quick enough. Screen resolutions were also quite low, so Electronic Chart Display and Information Systems (ECDIS) and the associated Electronic Navigational Chart (ENC) were preferred to a raster-based system. The need to reach international agreement and to meet the requirements of maritime safety meant that the IMO ECDIS Performance Standard was not agreed until late 1995.

There is also a need for a type approval standard for ECDIS, which is being developed by the Electrotechnical Commission and is due to be available at the end of this month. Type approval authorities will then be able to certify

***The bridge of the Katrine Mærsk, showing Sperry equipment using UKHO ARCS raster and the joint ENC data***

ECDIS equipment as being IMO-compliant and, subject to the availability of the ENC data, it will be possible for vessels to use ECDIS to satisfy their legal chart carriage requirements. At the moment, only paper charts meet this need.

The IMO calls for all ENCs to be produced by, or on the authority of, a government-authorised hydrographic office. The standard associated with the production of ENCs (the ENC Product Specification contained in IHO's S57 Edition 3) was not agreed by the IHO until late 1996. The UK Hydrographic Office (UKHO) and other national hydrographic offices are now developing the requisite ENC production and supply capability.

UKHO's public relations manager Ian Todd says that it currently has 70-80 charts available, with 19 charts having been completed in February. It has charted 13 major ports, most of the south and east coasts of England, the Bristol Channel and the Suez Canal and



***Katrine Mærsk started the first sea trial of official ENC data as part of SHARED, a co-operative venture between the UKHO and the Hydrographic Department of the Marine Port Authority of Singapore***

(right) *Katrine Mærsk's* captain, Bent Lyse, praised the Sperry system and the data, both ENC and raster. He said it was "a significant aid to safety". His ultimate aim is to carry no paper charts

(below) Manual plotting on paper charts is still the only legal way



Red Sea on behalf of Egypt. At present, there is only a limited amount of data available that conforms to the IHO S57 Edition 3 standard. While some HOs have been working hard to achieve coverage in their areas, some have not even started yet.

The delays in producing the relevant standards and in providing ENC's has meant that there has been an increased use of ECS's (Electronic Chart Systems) over the past few years, using commercially produced electronic charts. Rear Admiral John Clarke, Hydrographer of the Navy and chief executive of the UKHO, says, "Although ECS's should not be used as a chart, there are some grounds to believe that they are being so used." He goes on to say, "There are many who think that this combination of ECS and commercial data, which the producers acknowledge is not intended to meet SOLAS requirements, is not conducive to safe navigation."

In March of last year, the container-ship *Katrine Mærsk* started the first sea trial of official ENC data as part of SHARED (Singapore, Hong Kong, Admiralty, Raster, ENC, Demonstration), a co-operative venture between the UKHO and the Hydrographic Department of the Marine Port Authority of Singapore (HMPA). The aim of the SHARED is to assess the safety and effectiveness of 'hybrid' electronic chart systems (those capable of using both raster and vector data). Hybrid (also known as 'dual fuel') capability is seen as necessary because it is likely to be some years before there is good geographic coverage of ENC data that meets IMO requirements.

*Katrine Mærsk*, fitted with a hybrid Sperry Vision 2100 VMS system, sailed from Singapore to Hong Kong using HDMPA- and UKHO-produced ENC data for the port areas, and ARCS (raster charts from UKHO) charts in between. "The ship's officers showed no reluctance to use the less familiar-looking ENC data, and the Sperry system provided a smooth changeover between ENC and ARCS," the UKHO said afterwards. Feedback from this and subsequent transits showed that users were quick to appreciate the advantages of ENC over raster data, "especially the more flexible zoom capability and the simpler display."

However, users were quick to point out some problems; such as the number of "insignificant and distracting alarms" generated, and the "very user-unfriendly way in which additional chart information is presented". The UKHO says these are problems that ENC producers and equipment manufacturers need to resolve. It is also important that such systems do not produce too much data for crews to assimilate, and that operators cannot accidentally switch off vital information.

#### Glossary of terms

<b>IHO</b>	International Hydrographic Organization
<b>ECDIS</b>	Electronic Chart Display and Information Systems
<b>ENC</b>	Electronic Navigational Chart
<b>ECS</b>	Electronic Chart System
<b>RCDS</b>	Raster Chart Display System
<b>ARCS</b>	raster charts from UKHO
<b>RNC</b>	Raster Navigation Chart

There are now five vessels and three equipment manufacturers participating in SHARED, with vessels trading in Europe and Asia. To generate additional feedback, UKHO has supplied ENC's of the ports of Southampton, Felixstowe and Rotterdam Europort.